Date: Thu, 10 Mar 94 04:30:36 PST
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #56
To: Ham-Homebrew

Ham-Homebrew Digest Thu, 10 Mar 94 Volume 94 : Issue 56

Today's Topics:

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

Date: Wed, 9 Mar 1994 16:06:12 GMT
From: ihnp4.ucsd.edu!swrinde!sgiblab!cs.uoregon.edu!reuter.cse.ogi.edu!hp-cv!hp-pcd!hpcvsnz!dickrb@network.ucsd.edu
Subject: GPS Receiver Boards
To: ham-homebrew@ucsd.edu

I will take one too.... Now you are down to 98 units left....

73 de w7wkr

Date: 09 Mar 1994 17:38:25 GMT
From: pa.dec.com!e2big.mko.dec.com!nntpd.lkg.dec.com!nntpd.lkg.dec.com!waf@decwrl.dec.com
Subject: GPS Receiver Boards
To: ham-homebrew@ucsd.edu

> The question is: who's going to be buying in 100's?

I'm in (provided we find the 100 or better).

Bill KE1G

Date: 10 Mar 94 03:30:32 GMT
From: utcsri!newsflash.concordia.ca!CC.UMontreal.CA!poly-vlsi!
nick@rutgers.rutgers.edu
Subject: GPS Receiver Boards
To: ham-homebrew@ucsd.edu

I'm in for one too. That 97...

Nick


```
 ****************************************************************************
 *       Nick Ciarallo                                                      *
 *       SR Telecom Inc.            telephone: 514-335-2429  ex: 438        *
 *       Microwave Group            facsimile: 514-334-7783                 *
 *       8150 Trans Canada Hwy      internet : nick@vlsi.polymtl.ca         *
 *       St. Laurent, Quebec        hamradio : ve2hot@ve2fkb.pq.can.na      *
 *       Canada  H4S-1M5                                                    *
 ****************************************************************************
 *        Accept no substitutes, *REAL* ham radio lives on 220 MHz!         *
 ****************************************************************************
```

Date: Wed, 9 Mar 1994 22:39:24 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!usenet.ins.cwru.edu!nshore!
seastar!jjw@network.ucsd.edu
Subject: Need Filter Tables
To: ham-homebrew@ucsd.edu

I'm working on designing an 8-pole Chebychev crystal filter, using the equations and techniques in the May 1982 QST article, "A Unified Approach to the Design of Crystal Ladder Filters." Unfortunately, the table of normalized k and q values for a 0.1db ripple filter provided in the article only goes up to order 5.

It seems to imply these (and the pre-distorted tables) are from the Handbook of Filter Synthesis by Zverev, which I cannot find locally (the library here is *horrible*). If anybody is familiar with this article and/or this Handbook and would be so kind as to send me a copy of the tables, I'd appreciate it very much.

--
While (its_not_working())   John Welch, N9JZW
  mess_with_it();   jjw@seastar.org

Date: Wed, 9 Mar 1994 19:19:22 GMT
From: pa.dec.com!e2big.mko.dec.com!nntpd.lkg.dec.com!ryn.mro.dec.com!
est.enet.dec.com!randolph@decwrl.dec.com
Subject: Question: Capacitor types??
To: ham-homebrew@ucsd.edu

In article <CROFTW.3.000A9340@caedm.et.byu.edu>, CROFTW@caedm.et.byu.edu (Richard
Croft) writes...
>I am collecting some parts for a 35 Watt amplifier kit. The parts list calls
>for several different kinds of capacitors (silver mica, metal clad, disc,
>chip, ceramic, tant). Would someone please tell me if the type of capacitor
>is absolutely necessary or can I just use any type with the proper capacitance
>rating? If I need the special type of capacitor, what is the difference?

Use the right type. There are so many different kinds for different uses...
Tantalum are "solid state" replacements for electrolytics. Large values, low
voltage, for decoupling or filtering.
Ceramic disk are cheap, small value, high voltage, for decoupling, filtering,
DC blocking, etc. Type NP0 are temperature stable for use in oscillators and
such.
Chip caps are leadless, surface-mount types. Very low inductance due to no
leads, for UHF/microwave applications.
"Metal clad" sounds like the ceramic compression trimmers used at RF freqs.
High quality, low-mid value variables for trimming tuned circuits.
Silver mica are stable mid-high voltage, often used in LC filters.

Get a catalog from Digi-Key or Mouser for a good selection of caps.
800 DIGI KEY   800 34M OUSE
800 344 4539   800 346 6873
-Tom R.   N1OOQ   randolph@est.enet.dec.com

Date: 9 Mar 1994 17:05:18 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!europa.eng.gtefsd.com!
news.msfc.nasa.gov!news.larc.nasa.gov!grissom.larc.nasa.gov!
kludge@network.ucsd.edu
Subject: Reducing Tube Filament Voltage
To: ham-homebrew@ucsd.edu

In article <1994Mar8.135014.15825@ccd.harris.com> drs@ccd.harris.com (Doug

Snowden) writes:
>   In my reading about linear amplifier design and construction I have noticed in a couple of writings that if the filament voltage on say, a 3-500Z tube, is reduced from the typical 5.0 VAC to around 4.8 or 4.9 volts, tube life can beextended several fold.

Yes, this is true, but the increase in tube life is at the expense of cathode emission. This is fine if you're using something huge and don't mind reduced output.

>   In an article by AG6K on QSK for the TL-922 and SB-220 he mentions that
>a good method of reducing the filament voltage (at the socket) is by
>using smaller guage wire from the transformer to the socket. He mentions that
>it should have good (teflon) insulation. My question is: Is this really the
>best way to reduce the voltage? Seems like varying line voltage would necessatate using some sort of rheostat? Any ingenious methods out there? I am planning onusing a step-start relay to initially start the filament voltage low to reduce
>inrush current on a 4-1000 tube.

That actually sounds like a bad idea to me. Why not just use a lower voltage transformer? 5V transformers turn up now and then on the surplus market and are fine for 6.3V tubes if you don't need to get full power. (And with a 4-1000, who needs full power? Anything more than 10W is gravy anyway.)

Inrush current limiting will only extend tube life in that it will reduce the chances of filament failures. Whether this is important or not depends on the particular tube type. Easy ways of handling turn-on filament failures are to use a slightly undersized transformer that is impedance-protected, or to use thermistors.

>   I have already implemented his method of biasing the tubes by putting
>a string of diodes in the cathode return line. This is in place of using a
>high wattage zener. This works fine, as you can fine tune the idle current on
>the tubes by the number of series diodes.

Even slicker, you can use a single zener with a pass transistor. (Can I say the word "transistor here?" Twiddle the gain on the circuit with a pot, and you can change your bias, and if you don't twiddle it, it stays rock steady.)
--scott
--
"C'est un Nagra. C'est suisse, et tres, tres precis."

Date: Wed, 9 Mar 1994 16:51:24 GMT
From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!emory!rsiatl!ke4zv!gary@network.ucsd.edu
Subject: Reducing Tube Filament Voltage

To: ham-homebrew@ucsd.edu

In article <1994Mar8.135014.15825@ccd.harris.com> drs@ccd.harris.com (Doug Snowden) writes:
>   In my reading about linear amplifier design and construction I have noticed in a couple of writings that if the filament voltage on say, a 3-500Z tube, is reduced from the typical 5.0 VAC to around 4.8 or 4.9 volts, tube life can beextended several fold.

Yes, but at some cost in tube Gm. Note that reducing the filament voltage is a *must* at VHF+ because back bombardment would otherwise overheat the cathode and lead to *very* short tube life.

>   In an article by AG6K on QSK for the TL-922 and SB-220 he mentions that
>a good method of reducing the filament voltage (at the socket) is by
>using smaller guage wire from the transformer to the socket. He mentions that
>it should have good (teflon) insulation. My question is: Is this really the
>best way to reduce the voltage? Seems like varying line voltage would necessatate using some sort of rheostat? Any ingenious methods out there? I am planning onusing a step-start relay to initially start the filament voltage low to reduce
>inrush current on a 4-1000 tube.

That isn't the best method, it's just a cheap way of adding fixed series resistance in the filament circuit. A rheostat is better, and a variac on the primary of the filament transformer is better yet. You want some adjustment capability because you'll want to raise filament voltage as the tube ages and emission drops off. And a variac will allow you to bring up the filaments slowly at power on, which will also increase tube life.

Gary
--

Gary Coffman KE4ZV | You make it, | gatech!wa4mei!ke4zv!gary
Destructive Testing Systems | we break it. | uunet!rsiatl!ke4zv!gary
534 Shannon Way | Guaranteed! | emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244 | |

Date: Thu, 10 Mar 1994 10:58:32 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!wupost!csus.edu!netcom.com!tgm@network.ucsd.edu
Subject: Reducing Tube Filament Voltage
To: ham-homebrew@ucsd.edu

Doug Snowden (drs@ccd.harris.com) wrote:
: My question is: Is this really the best way to reduce the voltage?
: Seems like varying line voltage would necessitate using some sort

: of rheostat? Any ingenious methods out there?

I don't know about ingenious but you could try putting in series
two back-to-back germanium rectifiers (or two suitable germanium
transistors diode connected, i.e. base shorted to collector). That
should give you about a 0.2 volt drop.

Thomas

Date: 9 Mar 1994 21:51:50 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!vixen.cso.uiuc.edu!
ux1.cso.uiuc.edu!rtaylor@network.ucsd.edu
To: ham-homebrew@ucsd.edu

References <jyoungberg.1.000B87CC@draper.com>, <2l8gp3$ikl@lll-winken.llnl.gov>,
<2lebkc$kmk@hpscit.sc.hp.com>aylor
Subject : Re: GPS Receiver Boards

rkarlqu@scd.hp.com (Richard Karlquist) writes:

>The Motorola GPS receiver is less than $150 in 100's. It has six
>channels and just about all the features you would ever want.

     So where do you get one in the "ones". Eagle's is $498 and
     has 5 channels as I remember. Just what do you get with more
     than 5 channels?

Date: 9 Mar 94 19:57:12 GMT
From: news.mentorg.com!hpbab33.mentorg.com!wv.mentorg.com!hanko@uunet.uu.net
To: ham-homebrew@ucsd.edu

References <2lebkc$kmk@hpscit.sc.hp.com>, <2lh20r$auf@bigfoot.wustl.edu>,
<gscottCMDK7n.4x@netcom.com>≠
Reply-To : Hank_Oredson@mentorg.com
Subject : Re: GPS Receiver Boards

In article <gscottCMDK7n.4x@netcom.com>, gscott@netcom.com (Gavin Scott) writes:
|> Jesse L Wei (jlw3@cec3.wustl.edu) wrote:
|> : Richard Karlquist (rkarlqu@scd.hp.com) wrote:
|> : : The Motorola GPS receiver is less than $150 in 100's. It has six
|> : : channels and just about all the features you would ever want.
|>
|> : The question is: who's going to be buying in 100's?
|>

|> I'll take one. Now you only have 99 more to get rid of!
|>
|> Gavin
|> --
|> Gavin Scott - Quest Software Inc - gavin@quests.com -or- gscott@netcom.com

Me too ... now only 98 to get rid of.

   ... Hank

--

Hank Oredson @ Mentor Graphics
Internet   : hank_oredson@mentorg.com
Amateur Radio: W0RLI@W0RLI.OR.USA.NOAM

Date: 9 Mar 94 21:35:04 GMT
From: sdd.hp.com!hpscit.sc.hp.com!rkarlqu@hplabs.hp.com
To: ham-homebrew@ucsd.edu

References <2lh20r$auf@bigfoot.wustl.edu>, <gscottCMDK7n.4x@netcom.com>,
<2ljo78$if2@bigfoot.wustl.edu>
Subject : Re: GPS Receiver Boards

Regarding my posting about Motorola GPS receiver boards:

It seems to have generated a lot of email.

Please get information directly from Motorola's Position
and Navigation Systems Business division if you
are interested. Call (708)-480-8000 and then follow the
directions about calling (800)-4-ONCORE. No, I don't
know what they cost in unit quantities. No, I haven't
hooked one up to my ham station. No, I am not interested
in coordinating a group purchase. I'm just giving you a
pointer to further information. Thank you.

Rick Karlquist N6RK
(I work for HP, not Motorola!)
rkarlqu@scd.hp.com

Date: 9 Mar 1994 05:52:40 GMT
From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!
howland.reston.ans.net!wupost!bigfoot.wustl.edu!nevada!jlw3@network.ucsd.edu

To: ham-homebrew@ucsd.edu

References <2lebkc$kmk@hpscit.sc.hp.com>, <2lh20r$auf@bigfoot.wustl.edu>,
<gscottCMDK7n.4x@netcom.com>£
Subject : Re: GPS Receiver Boards

Gavin Scott (gscott@netcom.com) wrote:
: Jesse L Wei (jlw3@cec3.wustl.edu) wrote:
: : Richard Karlquist (rkarlqu@scd.hp.com) wrote:
: : : The Motorola GPS receiver is less than $150 in 100's. It has six
: : : channels and just about all the features you would ever want.

: : The question is: who's going to be buying in 100's?

: I'll take one. Now you only have 99 more to get rid of!

Another thing--who would we trust to handle $15000 dollars? I'd probably
take one too--even if I don't have any use for it right now. . .

--jesse

End of Ham-Homebrew Digest V94 #56
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